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C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

2.28.h Screening Guide Card for Work Planning

Text Pages 1 through 3

C-A OPM Procedures in which this Attachment is used.		
2.28		

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved: _____
 Collider-Accelerator Department Chairman Date

P. Cirnigliaro

Screening Guidelines for Work Permit Determination

The purpose of this checklist is to **help in determining if a job requires a work permit** due to ESH&H hazards, system complexities, or work coordination needs. If the job already has an established work procedure or has been defined as a routine job due to the training and qualifications of the crafts person or technician, then the checklist is not needed. Check off items that apply to the job.

ES&H Permits Needed

- | | |
|--|--|
| <input type="checkbox"/> Confined space permit | <input type="checkbox"/> Fire protection impairment permit |
| <input type="checkbox"/> Cutting/welding permit | <input type="checkbox"/> Job-specific RWP |
| <input type="checkbox"/> Digging/core drilling permit | <input type="checkbox"/> Dept./Div-specific permit _____ |
| <input type="checkbox"/> Electrical working hot permit | |

If only one permit is checked off and there are no other ES&H concerns, complexities, or coordination issues checked off in the following sections, then an enhanced work permit is not required. If two or more permits are checked off, an enhanced work permit is recommended.

Safety Concerns

Check off applicable safety concerns unless covered by a specific work procedure or qualified training.

- ☐ Asbestos – work will disturb or involve removing asbestos – containing material
- ☐ Beryllium – cannot produce airborne beryllium dust in any manner
- ☐ Biohazard – potential to be exposed to biohazardous substances (i.e., bloodborne pathogens)
- ☐ Chemical – using or exposed to hazardous chemicals without specific procedure or training
- ☐ Elevated work – will use scaffolding, harnesses, lanyards, or fall protection plan
- ☐ Explosives – must use work permit if no task specific procedure for explosives is utilized
- ☐ Fumes/Mist/Dust – work activity likely to result in an inhalation or dermal exposure to dust, fumes, or mist
- ☐ Heat/Cold stress – will be working under extreme temperature conditions
- ☐ Lasers – will be using a class III or IV laser on the job
- ☐ Material handling – moving heavy loads by personnel other than riggers or qualified material handlers
- ☐ Non-ionizing radiation – work will involve the use of non-ionizing radiation sources or devices other than welding equipment (i.e., microwaves, RF fields, etc.)
- ☐ Oxygen deficiency hazard – work will be in a potential ODH area
- ☐ Radiation/Contamination – work involving radiation or contamination not covered by an RWP
- ☐ Removing/penetrating walls – firewalls involved in work
- ☐ Rigging/critical lift – work involves a critical lift or exposes expensive equipment to potential damage
- ☐ Stored energy – potential for exposure to any electrical, mechanical, hydraulic, or pressure systems that are not controlled or protected from workers
- ☐ Operational safety envelope – work could impact the operational safety envelope as defined by the Facility Use Agreement

If no safety permits in Section A are required and only one safety concern in Section B is checked, then a work permit is not required, but ES&H precautions must still be taken. If two or more safety concerns are checked, then a work permit is recommended since the level of planning rigor has increased. Contact ES&H Coordinator or ESH&Q personnel if any questions on the safety concerns.

Environmental/Waste Concerns

- ☐ Work may increase storage of chemicals beyond limits of Suffolk County Article 12
- ☐ Rad. Materials may exceed area posted limits
- ☐ Work creates a new air emissions source (rad. or non rad.) or changes an existing air emissions source
 - ☐ Liquid discharges of any of the chemicals listed on the BNL State Pollutant Discharge Elimination System (SPDES) Permit Chemicals exhibit.
 - ☐ Potential to disturb protected areas or species (i.e., wetlands)
 - ☐ Work will generate hazardous, industrial, mixed, radioactive, or regulated medical waste without an approved disposition path (Contract your Environmental Compliance Representative)
 - ☐ Work needs to be evaluated for pollution prevention or waste minimization opportunities.

If any of the environmental or waste concerns are checked off, a work permit is recommended. Contact your Environmental Compliance Representative if any questions on environmental/waste issues.

Complexity/Uncertainty Issues

- ☐ Shutdown of several systems is required to properly isolate the work area
- ☐ There are numerous major tasks/activities (i.e., 6 or more) involved in the job
- ☐ Work requires integration of regulatory controls or notification of regulatory agencies
- ☐ Work involves a large number of steps that require action or sequences of steps that may not be obvious
- ☐ Work is prone to rapidly changing conditions
- ☐ Work is infrequently done or it is a first time activity
- ☐ Equipment will be used outside of its normal operating range
- ☐ Person not experienced with new or specialized equipment or tools
- ☐ If work done incorrectly, could cause major system downtime or adverse public reaction

For one checkoff, work permit should be considered. For two or more, permit is recommended.

Work Coordination

- ☐ Work requires close coordination between multiple support and operational organizations
- ☐ Work has to be performed at the same time or in a certain sequence with other specific work requests or operational activities.

Work permit is recommended for any work coordination checkoffs unless job will be covered through another work planning procedure or document.

Addition C-A Low Hazard Tasks from OPM 2.28.d

Routine preventive maintenance.
Simple LOTO (not involving multiple energy sources)
Work covered under general RWP
Filtered respiratory protection used on the basis of personal choice
Routine crane, bucket-truck, or fork-truck work by trained personnel
Routine carpentry work, e.g., hanging bulletin boards, erect office partitions, painting, etc.
Routine mechanical work, e.g., run air lines, realign coupling, repack valve, etc.
Re-lamping
Restroom repairs
Scaffold assembly/disassembly (inspection required)
Routine HVAC repair
Work on energized systems under 50 volts (Range A)

Additional C-A Moderate Hazard Tasks from OPM 2.28.d

Respiratory protection (SCBA is High Hazard)
Work requiring a job specific RWP
Confined space work (Class 2A and 2B)
Bucket truck work within 10 feet of a non-insulated, energized line
Asbestos abatement work
Work requiring fall protection
If work permit is required for outside department
ALARA review required (greater than 0.75 person-rem)
Radiation Safety Committee review required
Need to set up Radioactive Material Work Area
X-ray hazards or sources in use
Conventional Safety Committee review required
Cutting and welding in other than C-A pre-established areas
Fire Hazard involved
Hazardous/flammable gas hazard created
Personal Protective Equipment (PPE) required, other than safety glasses, gloves shoes, ear plugs, or hard hat
Liquid spill prevention required
Liquid or airborne effluents generated
Excavations
Use of any hoisting and rigging equipment in excess of 75% of the rated capacity
Access control issue
Minors or students or untrained person involved in work

Additional C-A High Hazard Tasks from OPM 2.28.d

Confined space work requiring permit (Class 2C)
Work in High Radiation Areas greater than 5 rem/hour
Work in High Contamination Areas
Work involving voltages greater than 600 volts (Range D) (ESH Standard 1.5.0)
Work requiring the disabling or jumpering-out of safety interlocks (ESH Standard 1.5.3)
Work on pressure or vacuum vessels with greater than 500 psi-cubic-feet for the product of pressure and volume
Excavations over 5 feet in depth where personnel will be working in a trench
Critical lifts
Moving ALARA shielding (blocks and steel)
Class IIIB and IV laser alignment activities, which potentially expose personnel to laser hazards.

Screening Guidelines for Work Permit Determination

Screening Guidelines for Work Planning & Control and Application of the Quality Graded Approach (10/2004)

ESH Category/Quality Class	ESH& Risk Level			
	Negligible / A4 (Negligible)	Low / A3 (Minor)	Moderate / A2 (Major)	High / A1 (Critical)
ESH Issues				
1. Personnel Injury	Negligible risk for injury	Minimum risk for injury	Potential for serious injury	Potential for fatality or severe injury
2. Radiological Work	Negligible potential for exposure	Work in controlled areas	Work requiring an RWP	Work requiring an RWP and ALARA review
3. Electrical Work	De-energized (discharged)	<ul style="list-style-type: none"> Work on energized systems 50 volts or less (Range A) Work on any electrical system after proper application of LOTO and zero energy checks 	Work on energized systems greater than 50 volts but less than 600 volts (Range B & C) ES&H 1.5.0	<ul style="list-style-type: none"> Work on energized systems 600 volts or greater (Range D) – ES&H 1.5.0 Work requiring the disabling or jumpering out of safety interlocks – ES&H 1.5.3 Any work within 10 feet of a non-insulated energized line
4. Stored Energy (hydraulic, thermal, pneumatic, mechanical, etc.)	No stored energy	<ul style="list-style-type: none"> Capable of being easily isolated; no disassembly required. LOTO 	Required to disassemble system or piping to isolate energy (i.e., - inserting blank flange)	
5. Confined space work	No confined space	Confined space (Class 1)	Confined space work (Class 2A and 2B)	Confined space work requiring permit (Class 2C) - Confined Space Subject Area
6. Excavation, digging, trenching, or concrete penetration	None	<ul style="list-style-type: none"> Excavations where no personnel will be in the trench Dig depth of less than 5 feet 	<ul style="list-style-type: none"> Excavations over 5 feet in depth with personnel using trench box "Aggressive" concrete penetration 	<ul style="list-style-type: none"> Excavations over 5 feet in depth where personnel will be working in trench and using engineered protective system (i.e., - sloping or shoring) – ES&H 1.18.0
7. Environmental Aspects/Impacts – refer to "Criteria for Significant Environmental Aspects" Note: Quality Class does not apply to this issue. See BNL's environmental system documentation.	No environmental aspects associated with work	Work has an environmental aspect but does not meet significance criteria	Work has an environmental aspect that meets significance criteria	Work has an environmental aspect that meets significance criteria and has potential for (1) radiological release or (2) groundwater contamination or (3) regulatory violation
8. Work requiring respiratory protection	Respiratory protection not required		Air purifying respirator required	Air supplied respirator required (SCBA or air line) – ES&H 2.2.0
9. Non-ionizing Radiation	None	<ul style="list-style-type: none"> Exposure <TLV Work with class I, II, or IIIa lasers 	<ul style="list-style-type: none"> Exposure >TLV Work with class IIIB lasers 	<ul style="list-style-type: none"> Pacemaker wearer or medical implant Work with class IV lasers
10. Rigging and heavy lifting	None	Routine bucket truck, forklift, or crane work with trained personnel	<ul style="list-style-type: none"> Lift is 75% or more of the rated capacity Moving heavy loads by personnel other than riggers or qualified crane/fork operators 	Critical lifts – ES&H 1.6.0
11. Elevated work	None	<ul style="list-style-type: none"> No fall protection required Work requiring fall protection equipment, but with established procedures and qualification training (i.e., - bucket truck use) 	Work requiring fall protection equipment, (i.e., - harness, lanyard, etc.)	Work requiring a <u>fall protection plan</u>
12. Work with OSHA regulated chemicals (i.e., lead, heavy metals, etc.)	None	Below action level	Potential for exceeding action level	Potential for exceeding exposure level
13. Beryllium	None	Work with articles – required completion of BURF: send to SHSD	Machining prohibited (moderate and high risk work prohibited without written consent of BNL Laboratory Director and DOE BHG office)	
14. Other hazards identified in the SBMS Work Control subject area review process (examples given)	Work in Biosafety Level 1	<ul style="list-style-type: none"> Work with animal subjects Noise level less than 85 dBA Work in Biosafety Level 1/2 & 2 	<ul style="list-style-type: none"> Work requiring valve lineup instructions to properly isolate system Asbestos abatement Demolition work with potential legacy waste concerns Work in extreme temperature conditions Work with biohazardous materials Work in Biosafety Level 2/3 Work with human subjects Noise level 85-100 dBA 	<ul style="list-style-type: none"> Work on pressurized or vacuum systems, dept. specific – ES&H 1.4.1 Work on hydrogen or flammable systems Work on shielding, dept. specific – ES&H 1.6.0 Work in Biosafety Level 3 & 4 Noise level >100 dBA
Programmatic/Quality Issues				
15. Stakeholder Perception	Negligible on overall BNL/DOE mission and program	Minor on overall BNL/DOE mission and program	Major on overall BNL/DOE mission and programs	Critical on overall BNL/DOE mission and program
16. Data Integrity	Negligible reduction in data quality or equipment output.	Minor reduction in data quality or equipment output.	Major reduction in data quality or equipment output.	Total loss/severe reduction in data quality or equipment output.
17. Downtime of a program.	Negligible, e.g. <ul style="list-style-type: none"> Less than 2 days 2% of program schedule 	Minor, e.g., <ul style="list-style-type: none"> 2 days or more but less than 4 days 2% or greater but less than 10% of program schedule 	Major, e.g. <ul style="list-style-type: none"> 4 days or more but less than 3 weeks 10% or greater but less than 30% of program schedule 	Critical, e.g. <ul style="list-style-type: none"> 3 weeks or more 30% or greater of program schedule
18. Equipment dollar loss	Negligible, e.g. <ul style="list-style-type: none"> Less than \$10K Less than 2% of item/material or program cost	Minor, e.g. <ul style="list-style-type: none"> 10K to 50K 2% or greater but less than 10% of item/material or program cost 	Major, e.g. <ul style="list-style-type: none"> Greater than 50K to 250K 10% or greater but less than 50% of item/material or program cost 	Critical, e.g. <ul style="list-style-type: none"> Greater than 250K 50% or greater of item/material or program cost